

## CALIMS

1. A bookbinding apparatus comprising:

a movable adhesive tank (23) for retaining therein an adhesive melted by heat;

5 a roller (24) rotatably supported with the adhesive tank so as to dip a lower portion thereof in the adhesive retained in the adhesive tank, for applying the adhesive to a sheet stack along a lateral edge thereof;

10 a holding unit (18) capable of holding the sheet stack;

an adhesive tank carrier (76, 78) for disposing the adhesive tank and the roller at a stand-by position located outside a longitudinal end face of the sheet stack held by the holding unit in a stand-by stage, and moving  
15 the adhesive tank and the roller together from the stand-by position in a longitudinal direction of the sheet stack substantially through an entire area under a back face thereof in a bookbinding stage; and

20 a non-contact heater (20) for contactlessly heating the adhesive tank disposed at the stand-by position to melt the adhesive.

2. The bookbinding apparatus according to Claim 1, wherein the non-contact heater (20) is provided with an electromagnetic induction heating coil (20); and the  
25 adhesive tank (23) is constituted of a material containing

a ferromagnetic material (72).

3. The bookbinding apparatus according to Claim 2, wherein the non-contact heater (20) is immovably placed at a stand-by position.

5           4. The bookbinding apparatus according to Claim 3, wherein the adhesive tank (23) is provided with a container-shaped main body (23a) of a non-ferromagnetic material for retaining therein the adhesive and a  
10 surface of the main body; and the non-contact heater (20) is located so as to confront the heating portion (72) of the adhesive tank (23) placed at the stand-by position.

5. The bookbinding apparatus according to one of Claims 2 to 4, wherein the roller (24) is constituted of a  
15 non-ferromagnetic material.

6. The bookbinding apparatus according to Claim 1, wherein the adhesive tank (23) is provided with an inclined bottom wall (23b) in an adhesive retaining region of a container-shaped main body (23a) of the adhesive tank to  
20 retain the adhesive therein, for providing a deeper portion corresponding to a position of the roller.

7. The bookbinding apparatus according to Claim 1, wherein the adhesive tank (23) is provided with a fin for promoting melting of the adhesive, erected on a bottom wall  
25 in the adhesive retaining region of the container-shaped

main body (23a) of the adhesive tank to retain the adhesive therein.

8. The bookbinding apparatus according to one of Claims 1 to 3, further comprising:

5           an adhesive supply unit (5) installed opposite to the stand-by position of the adhesive tank (23) across the sheet stack, including a storing section (51) for storing therein adhesive pellets to be transformed into the melted adhesive retained in the adhesive tank, a pellet supply  
10 path (52, 27) downwardly extending from a bottom portion of the storing section, and a pellet outlet (56) through which the adhesive pellets transferred through the pellet supply path are discharged; and

          an adhesive supply control unit (76, 53) for  
15 controlling a supplying timing of the adhesive pellets from the adhesive supply unit (5), such that a predetermined amount of adhesive pellets is discharged from the pellet outlet (56) to the adhesive tank (23) at a time that the adhesive tank has reached a position where the adhesive  
20 tank can receive the adhesive pellets discharged from the pellet outlet (56),

          thereby the adhesive pellets supplied into the adhesive tank are melted.

9. The bookbinding apparatus according to Claim 8,  
25 further comprising:

a level detection unit (71b) for detecting a surface level of the adhesive retained in the adhesive tank;

wherein the adhesive supply control unit (76, 53) supplies the adhesive pellets until the adhesive surface exceeds a reference level, when the adhesive surface level has been detected to be lower than the reference level by the level detection unit (71b).

10. The bookbinding apparatus according to Claim 8, further comprising:

two openable partition plates (55a, 55b) disposed inside the supply path (52, 57) with a predetermined interval therebetween, so that a predetermined amount of adhesive pellets are stored between the partition plates (57);

wherein the adhesive supply control unit (76, 53) open or close the two partition plates (55a, 55b) independently.

11. The bookbinding apparatus according to Claim 10, wherein each of the two partition plates (55a, 55b) is of a disk shape with an opening, and are fixed by a shaft (54) disposed substantially parallel to the supply path (52, 57) such that a rotation phase of the opening of the respective partition plates is different from each other; and the adhesive supply control unit (76, 53) drives the

shaft to rotate such that only one of the partition plates permits a communication through the supply path.

12. An adhesive pellet of a substantially spherical shape, to be used with the adhesive supply unit  
5 (5) usable with the bookbinding apparatus according to Claim 8.

13. The bookbinding apparatus according to one of Claims 1 to 4, further comprising:

a binding mode selection unit (76) for selecting  
10 a bookbinding mode according to a signal identifying whether a case binding mode of binding a sheet stack with a cover or a pad binding mode of binding a paper pad without a cover; and

a rotation control unit (76, 21) for switching a  
15 roller controlling mode according to the bookbinding mode selected by the bookbinding mode selection unit.

14. The bookbinding apparatus according to Claim 13, wherein the adhesive tank carrier (76, 78) serves to move the adhesive tank and the roller back and forth in a longitudinal direction of the sheet stack; and the rotation control unit (76, 21) rotates the roller (24) in a forward direction with respect to a moving direction thereof, during both of the forward and backward travels of the adhesive tank (23), when a pad binding mode in which a  
20 cover is not provided to the sheet stack is selected by the  
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bookbinding mode selection unit.

15. The bookbinding apparatus according to Claim 13, wherein the adhesive tank carrier (76, 78) serves to move the adhesive tank and the roller back and forth in a longitudinal direction of the sheet stack; and the rotation control unit (76, 21) rotates the roller in a different direction according to a moving direction thereof.

16. The bookbinding apparatus according to Claim 15, further comprising:

a thickness detecting device (31, 38) for detecting a thickness of the sheet stack (100) held by the holding unit (18); wherein the rotation control unit (76, 21) stops a rotation of the roller (24) during a forward travel of the adhesive tank (23) but rotates the roller in a reverse direction with respect to the moving direction during a backward travel of the adhesive tank (23) when a thickness of the sheet stack (100) has been detected to be equal to or thinner than a reference thickness, while the rotation control unit (76, 21) rotates the roller (24) in a forward direction with respect to a moving direction thereof during both of the forward and backward travels of the adhesive tank (23), when a thickness of the sheet stack (100) has been detected to be thicker than the reference thickness, in case where the case binding mode of providing a cover to the sheet stack is selected by the bookbinding

mode selection unit.

17. The bookbinding apparatus according to Claim 16, wherein the reference thickness is in a range of 1.8 to 2.2 mm.

5 18. The bookbinding apparatus according to Claim 16, further comprising:

a position detection unit (31a, 31b, 31c) for detecting a position of the adhesive tank (23);

10 wherein, once the adhesive tank (23) reaches a predetermined position during a backward travel of the adhesive tank (23), the rotation control unit (76, 21) stops the rotation of the roller (24) during the subsequent travel of the adhesive tank (23) from the predetermined position to a final edge of the sheet stack (100).